

### **Abstract of the Disclosure**

A multi-protocol modulator capable of supporting two or more different modes of operation, each mode of operation corresponding to a different type of modulation, comprises an  $m$ -level phase shift keying ( $m$ -PSK) modulator which receives a serial input data stream and maps data contained therein into a constellation including  $m$  equidistant phases in accordance with a predetermined mapping scheme. The  $m$ -PSK modulator is shared by at least two different modulation protocols by allowing the mapping scheme to be selectively changed depending upon the modulation protocol used. The multi-protocol modulator further includes a phase rotator operatively coupled to the output of the  $m$ -PSK modulator. The phase rotator selectively rotates the phase of the  $m$ -PSK signal by a predetermined phase rotation value. The phase rotator is shared by the two or more modulation protocols by allowing the phase rotation value to be selectively modified depending upon the modulation protocol used. A phase rotated signal is then passed through a pulse shaping filter having a linearized Gaussian response.